

REMARKS

Status of Claims

1. Claims 1 through 5 were originally presented in this application. Claims 2, 3, and 5 were cancelled without prejudice in previous papers. No claims have been added, canceled, or amended in this paper. Claims 1 and 4 remain pending.

Claim Rejections – 35 U.S.C. § 112

2. Claims 1 and 4 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. In particular, the Examiner asserts that because the size of a wafer is variable, a limitation that relies on wafer size renders a claim indefinite.
3. Applicants respectfully traverse this rejection. Previously presented claim 1 recites: "the wafer holder having a surface for carrying **wafers of a predetermined diameter**" (emphasis added). Claim 1 clearly states that the size of the wafer is "predetermined." It is therefore not "variable" (as stated by the Examiner in his § 112 rejection). MPEP § 2173.05(b) states:

Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.

Applicants respectfully submit that those of ordinary skill in the art would readily recognize and understand that commercial wafer holders are fabricated to support and process wafers of a single, predetermined diameter (e.g., 300 mm). Accordingly, claim 1 is definite. In particular the claim 1 recitation, "the electrode circuit diameter being greater than said predetermined diameter of the wafers that the wafer holder carries" is definite. Claim 1 clearly recites a structure in which the electrode circuit diameter is greater than the single, predetermined wafer diameter that the wafer holder was designed to carry. Thus, for wafer holders designed to carry 300 mm wafers, the electrode circuit diameter must be greater than 300 mm (as would be required by the language of claim 1).

4. The Examiner quotes MPEP § 2173.05(b) in stating, "Reference to an object that is variable may render a claim indefinite." MPEP § 2173.05 cites *Ex parte Brummer*, in which a claim relating front and rear wheel spacing in a bicycle to the height of rider for which the bicycle was designed was found to be indefinite. In *Ex parte Brummer*, the board found the claim to be indefinite since there was no known standard for sizing a bicycle to a rider. Applicants respectfully submit

that claim 1 is clearly distinct from *Ex parte Brummer* for several reasons. First, as stated above in Paragraph 3, claim 1 recites a **single, non-variable** wafer diameter ("wafers of a predetermined diameter"). This is clearly a different arrangement than the variable height of bicycle riders. Second, those of ordinary skill in the art would readily recognize that there are only a few discrete sizes of wafers in commercial use (e.g., 200 and 300 mm). And third, wafer holders are known in the industry to be designed for a particular, single, non-variable size of wafer. Those of ordinary skill in the art would readily be able to differentiate between a wafer holder designed for 200 mm wafers and a comparable wafer holder designed for 300 mm wafers. Thus, Applicants asserts that the recitation "predetermined diameter of the wafers that the wafer holder carries" is non-variable, and therefore definite.

5. MPEP § 2173.05(b) also cites *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, in which the Federal Circuit found a claim limitation specifying a certain part of a pediatric wheelchair to be definite. The part in question was "so dimensioned as to be insertable through the space between the door frame of an automobile and one of the seats." The court held that the phrase "so dimensioned" was as accurate as the subject matter permitted. Likewise, Applicants submit that the phrase "greater than said predetermined diameter of the wafers that the wafer holder carries" is as accurate as the wafer holder art permits. Notwithstanding this finding of definiteness by the Federal Circuit, Applicants respectfully submit that claim 1 is even more definite than the claim in *Orthokinetics*. As stated above, claim 1 recites a predetermined wafer diameter—a single, non-variable diameter.
6. For the reasons set forth above, Applicants respectfully submit that claims 1 and 4 are definite, and therefore that the § 112 rejection of these claims is overcome.

Claim Rejections – 35 U.S.C. § 102

7. Claims 1 and 4 stand rejected under 35 USC § 102(b) as being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as being obvious over, *Niori et al.* (U.S. Pat. No. 6,197,246) as evidenced by *Shamouilian et al.* (U.S. Pat. App. Pub. No. 2001/0003298).
8. Applicants respectfully traverse this rejection. MPEP § 2131 states that a reference must teach every element of a claim to properly anticipate that claim. The Federal Circuit states: "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," *Verdegaal Bros. v. Union Oil Co. of California* (as cited in MPEP § 2131, 2100-73, column 2). Applicants respectfully assert that *Niori et al.* does not teach, nor even suggest, every element of independent claim 1. In particular, *Niori et al.* fails to teach or suggest a wafer holder having an RF

electrode with a diameter greater than that of the predetermined wafer diameter as described above.

9. On page 3 of the Office Action, the Examiner states: "regarding the diameter of electrode being more than the diameter of the wafer, it is more than the diameter of a standard wafer of 150 mm." The Examiner's assertion that the diameter of the electrode is more than the diameter of a standard wafer of 150 mm is not germane to the issue of whether claim 1 of the present application distinguishes over the cited references. Claim 1 recites: "the electrode circuit diameter being **greater than said predetermined diameter of the wafers** that the wafer holder carries" (emphasis added). *Niori et al.* explicitly discloses a wafer holder carrying "8-inch wafers" (column 19, line 39). An 8-inch wafer is equivalently known in the art as a 200 mm wafer ($8 \times 25 \text{ mm/inch} = 200 \text{ mm}$). *Niori et al.* also discloses (in the same Example) a mesh electrode having an outer diameter of 200 mm (column 19, line 10). Thus, *Niori et al.* does not disclose an "electrode circuit diameter being **greater than** said predetermined diameter of the wafers that the wafer holder carries" (emphasis added) as recited in claim 1. On the contrary, *Niori et al.* discloses equal diameters (both being 200 mm). Applicants therefore submit that the Examiner's rejection is improper for failing to comply with MPEP § 2131.

10. On page 3 of the Office Action, the Examiner also states,

[E]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969).

Applicants respectfully submit that the Examiner has improperly cited *Ex parte Thibault*. The Thibault patent (U.S. Pat. No. 3,498,951) teaches a method and apparatus for manufacturing formaldehyde and its polymers. During prosecution of the Thibault patent, claim 12, directed to an apparatus for manufacturing formaldehyde, was rejected by the examiner in that case. The rejection was upheld by the Board of Appeals in *Ex parte Thibault*. In upholding the rejection, the Board of Appeals stated that the claim 12 apparatus was essentially fully described in prior art U.S. Pat. No. 2,790,755 to Walker. The Board also stated that expressions relating the contents of the apparatus to the contents thereof during an intended operation are of no significance in determining patentability. In the Thibault case, the contents of the apparatus—various formaldehyde precursors—were unrelated to and had no bearing whatsoever on the structure of the apparatus. Thus, the Board rejected Thibault's arguments that claim 12 was patentable over Walker because of the particular operation the apparatus would be used for, and owing to how the apparatus related to its contents during that operation. Contrary to *Thibault*, in the instant application, the structure of the

wafer holder as claimed **is directly determined by the size of the wafer.** In particular, the diameter of the RF electrode is recited to be greater than the predetermined wafer diameter. Applicants therefore respectfully assert that the claim limitation relating the size of the RF electrode to the predetermined size of the wafer is significant to patentability, and therefore reassert that the outstanding rejection of claim 1 is improper.

11. On page 3 of the Office Action, the Examiner further states that electrode size is, in the context of MPEP § 2144.05 IIB, a result-effective parameter, and is therefore obvious to optimize. In particular, the Examiner states,

Shamouilian et al. recognize the relationship of electrode size with respect to wafer size for uniformly coupling RF energy, and teach that it should be sufficiently large to uniformly couple RF energy to the gas in the chamber and across substantially the entire area of the substrate.

According to MPEP § 2144.05 IIB, what is foremost required to weed out claim limitations that are undistinguishing because they are merely the optimization of result-effective variables is a showing in the prior art that the limitation is recognized to achieve the result. Applicants respectfully assert that there is no such showing in *Shamouilian et al.* On the contrary, *Shamouilian et al.* merely teach that an electrode must be sufficiently large to uniformly couple RF energy to the gas in the chamber. *Shamouilian et al.* then goes on to teach that for wafers having diameters of 200 and 300 mm, the area of the electrode is typically about 30,000 and 70,000 mm² (i.e., electrode diameters of about 195 and 298 mm, respectively). Thus paragraph [0032] of *Shamouilian et al.*, when properly understood, merely teaches that the RF electrode should have a diameter about equal to that of the wafer. This teaching is similar to that of the *Niori et al.* reference. Applicants courteously maintain, therefore, that there is no teaching or suggestion of an RF electrode having a diameter greater than the predetermined wafer diameter, as recited in claim 1.

12. For the reasons set forth above, Applicants assert that independent claim 1 is patentable over the prior art of record. The February 5, 2007 Office action is the fourth action on the merits in this case. Yet the Office has failed to provide any teaching or suggestion in the prior art of a wafer holder having an RF electrode with a diameter greater than that of a predetermined diameter of wafers that the wafer holder is intended to process. Applicants therefore assert that the independent claim 1 should be held to be allowable, and that claim 1 thus being allowable, that it would follow that dependent claim 4 must also be allowable.

App. No. 10/604,512
Response dated July 5, 2007
Response to Office Action dated February 5, 2007

Accordingly, Applicants believe that this application is now in full condition for allowance, which action Applicants earnestly solicit.

Respectfully submitted,

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